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Yang

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(54) **SPECIFICATION CABINET LOCK**

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E05B 11/00 (2006.01)

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See application file for complete search history.

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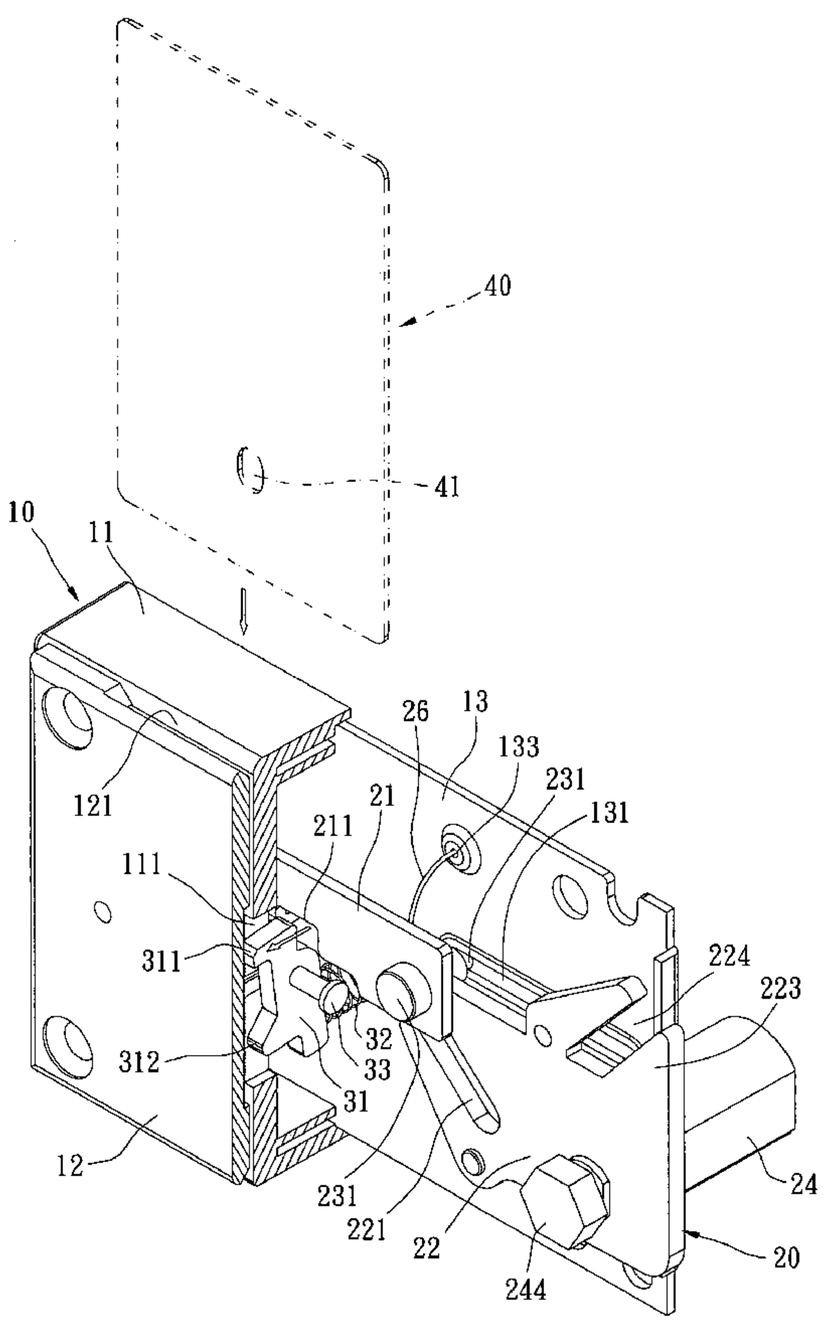
(57) **ABSTRACT**

A cabinet lock includes a lock shell, a lock frame and a restricting device. The lock shell defines a card insertion space, the lock frame includes a slide portion, a hasp portion, an initiative portion and a core, the hasp portion defines a slide groove, the initiative portion is fixed to the hasp portion within the slide groove. The core extends into the main shell to contact with the hasp portion. A block and a protruding portion are defined where the lock block moves away from the stop portion by an external force displacing the extruding portion. Thus, the key can be removed from the core when the card is inserted, and the block locks the card and does not permit removal of the card. The card can be removed when the key is inserted into the core which avoids the loss of the card and the key together.

9 Claims, 4 Drawing Sheets



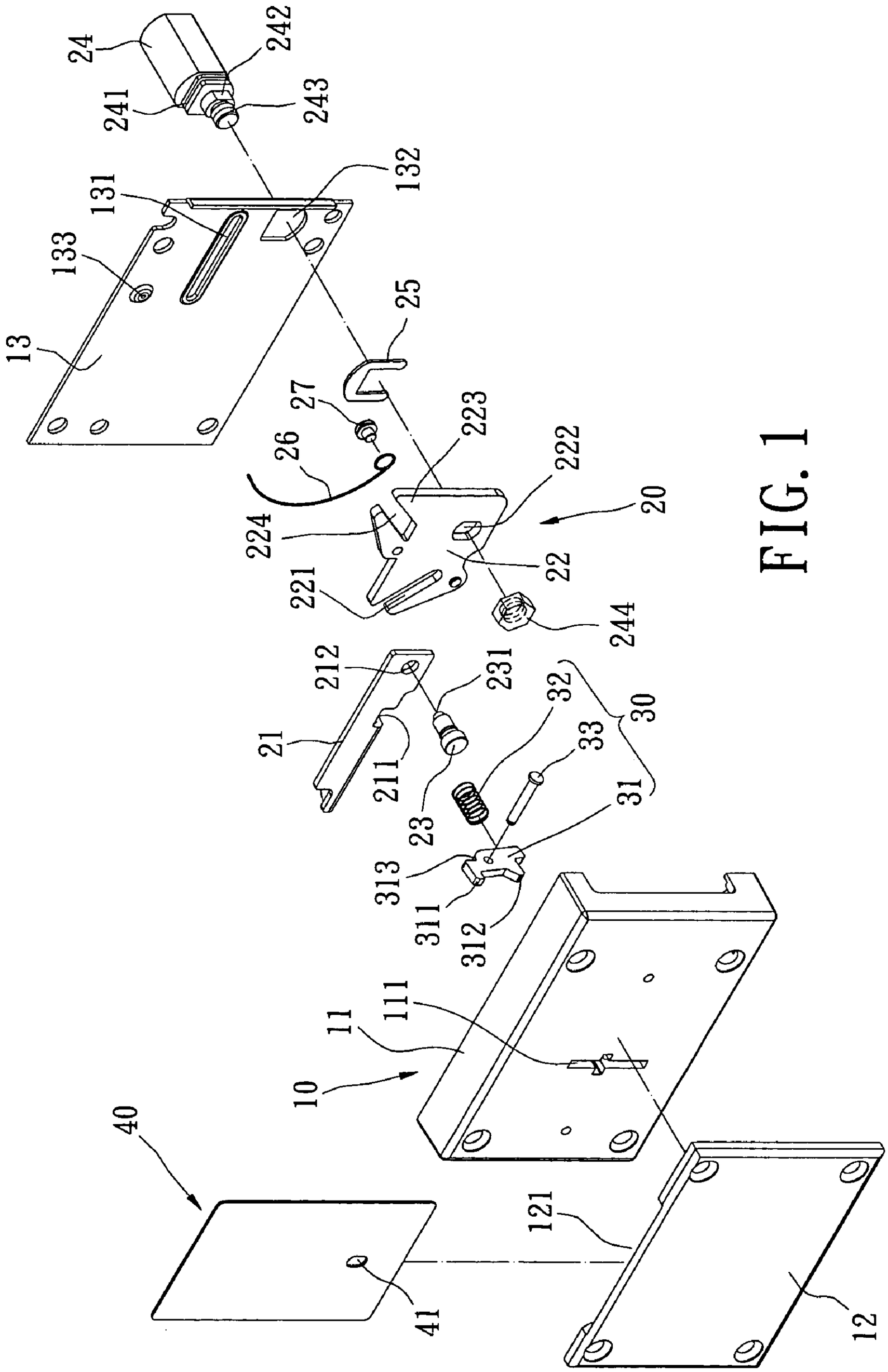

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FIG. 1

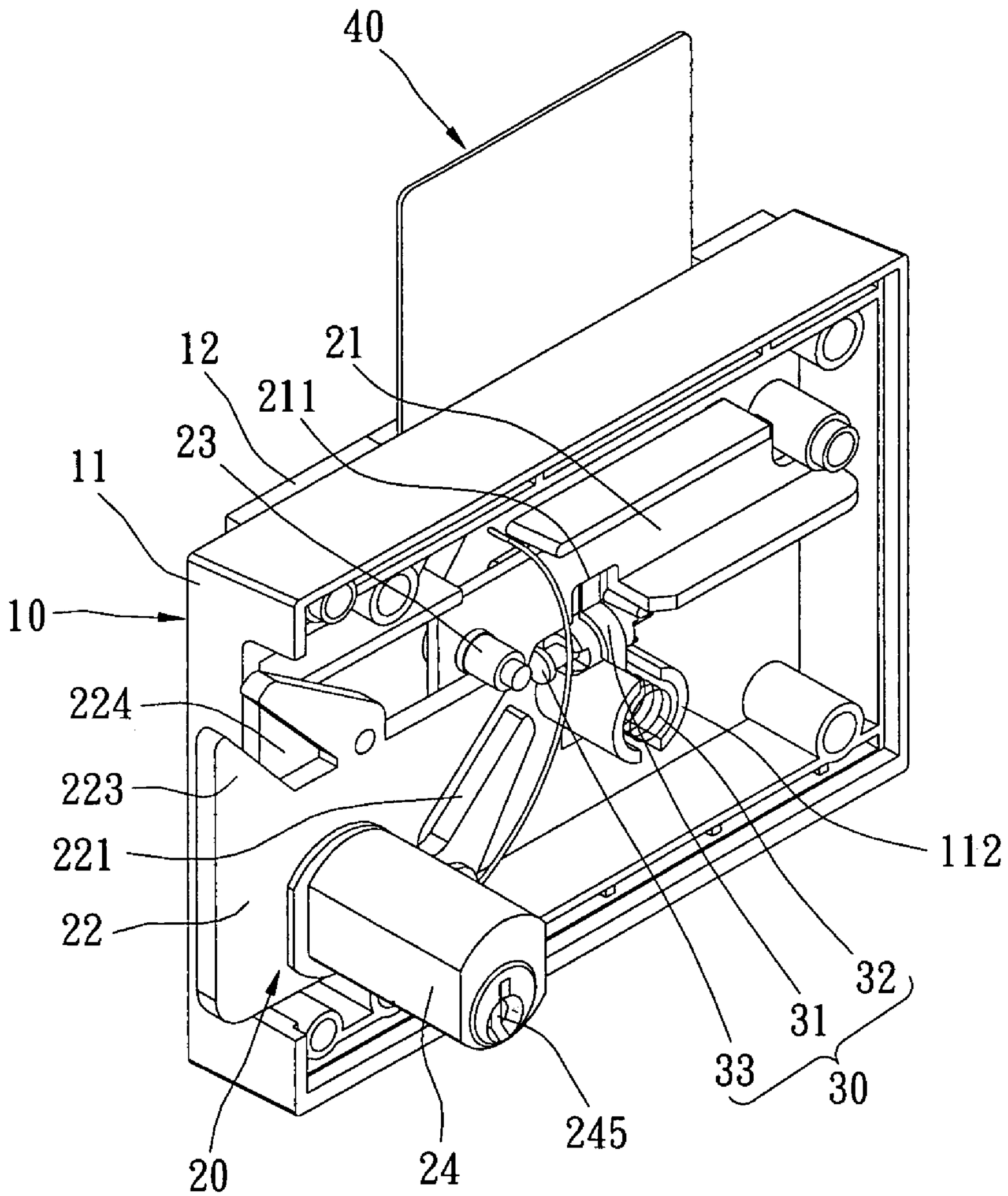

FIG. 2

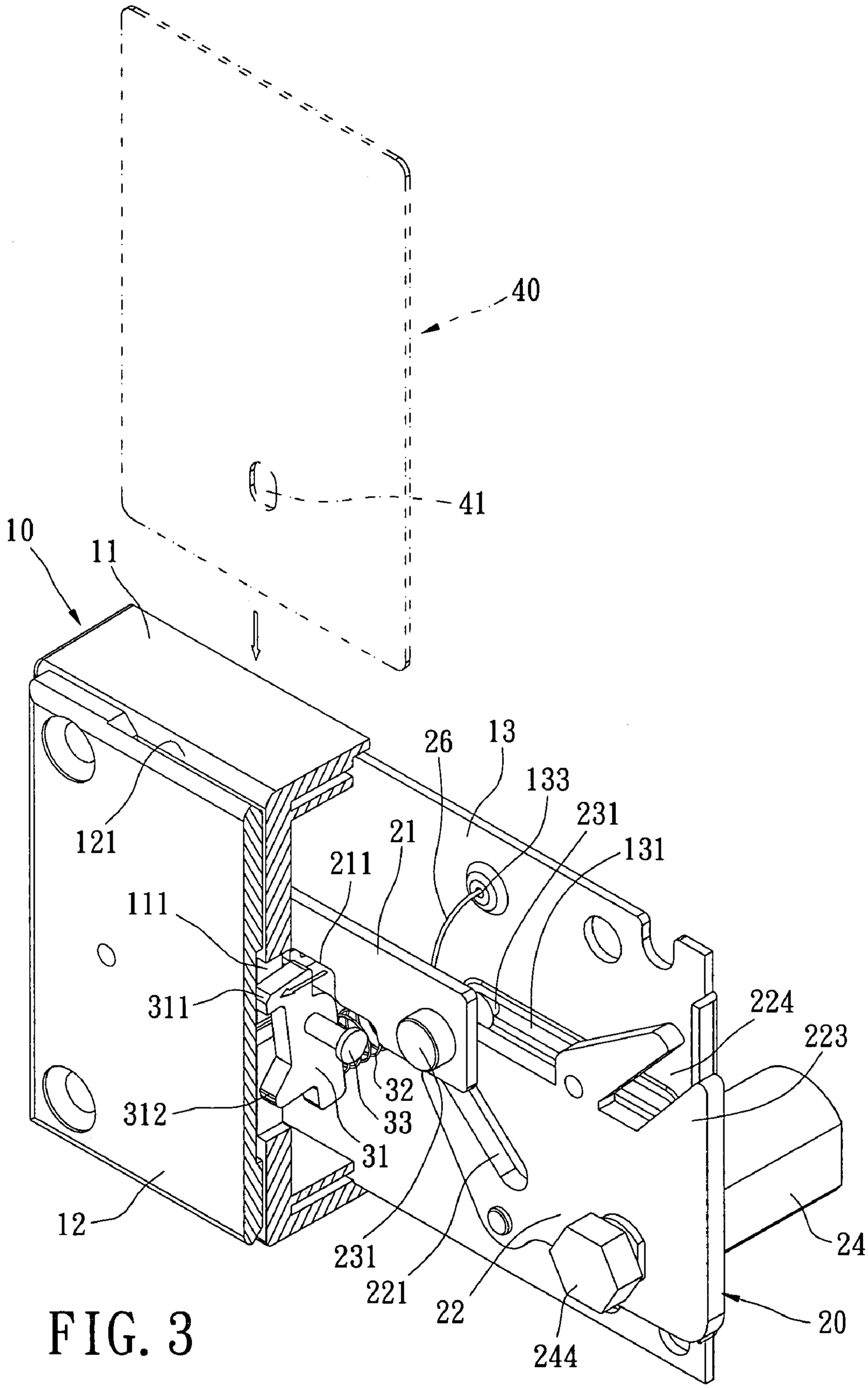
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FIG. 3

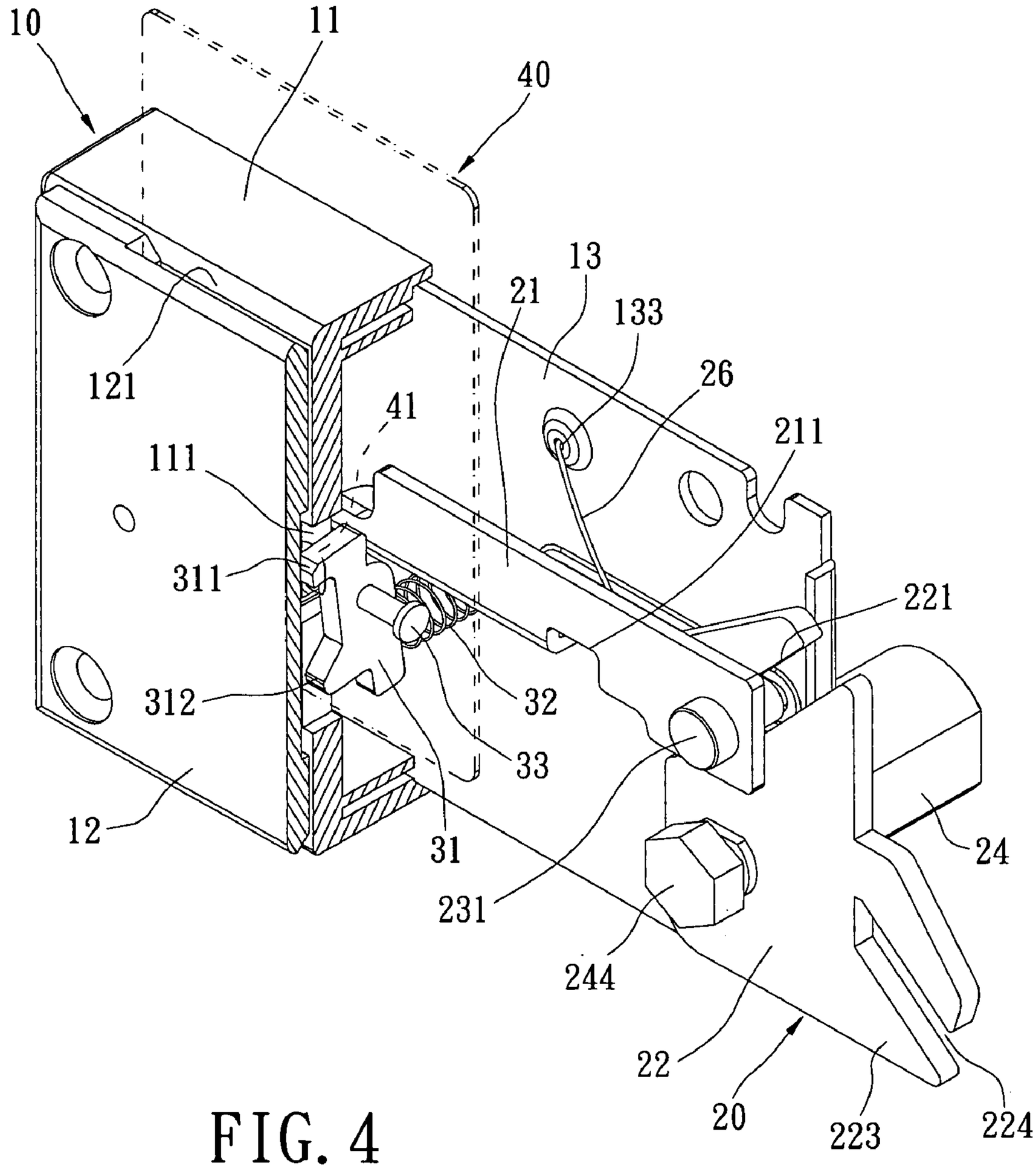
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FIG. 4

SPECIFICATION CABINET LOCK

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a structure of a cabinet lock, and more especially to a structure having two locks and being opened by both cards and keys.

2. Description of the Prior Art

At present, locks are used widely by the people and have many types, some locks such as key locks, cabinet locks and number locks which are opened by keys, some locks such as card locks which are opened by insertion of cards.

For cabinet locks, which can be used in some special locations, for instance, natatorium, gymnasium, and so on, users can put goods into a cabinet with the cabinet being locked by a key to avoid losing objects put into the cabinet. However, keys of the cabinets can be inserted and withdrawn freely, which leads to the loss of keys, or, the keys of these cabinet locks may be removed and discarded accidently or through the action of hostile third party. In this way, the original function of the cabinet locks is lost and owners of the cabinets have to have the keys made again or have the cabinets changed. Thus it is very important to prevent the keys from being removed freely when the cabinets are not in use in order to avoid the loss of keys or discarding of the keys.

Thus the inventors of the present invention have the invention concept which obviates the disadvantages of prior lock systems and provides an improvement over existing cabinet lock systems.

SUMMARY OF THE INVENTION

An object of the present invention is to provide a cabinet lock having two locks which are opened with a card and a key. When the card is not in use, the key is placed within the core and cannot be removed, which avoids the loss of the key or the key being discarded spitefully by somebody else. When the card is in use, the key may be removed however the card cannot be removed. To remove the card, it is necessary to insert the key into the core, which avoids the situation where both the key and the card are lost. Thereby, by controlling the card, it may be avoided that not only a key of a cabinet is lost but also keys of an arrangement of cabinet locks may be discarded spitefully by somebody else, which lead to the original function of the cabinet locks being lost.

To achieve the above-mentioned object, a cabinet lock in accordance with the present invention is disclosed. The cabinet lock includes a lock shell defining a card inserted space, a lock frame includes a slide portion, a hasp portion, an initiative portion and a core. The slide portion and the hasp portion are set movably inside the main shell, an end of the slide portion defines a stop portion, and the hasp portion defines a slide groove. The initiative portion passes through the slide portion and is set in the slide groove. An end of the core extends into the main shell to contact with the hasp portion and another end of the core extends out of the lock shell. A restricting device includes a lock block and an elastic module, the lock block is pivoted in the main shell. A block and a protruding portion extend from an end of the lock block and are near to each other. The protruding portion is longer than the block and the block is close to the slide portion, and part of the lock block is located in the stop portion to lock the slide portion. The lock block is displaced from the stop portion by an outside force displacing the extruding portion. Two ends of the elastic module support another end of the protruding portion and an inside wall of the back board of the lock shell respectively which then provides the lock block with the function of elastic replacement.

Benefit of the present invention is that when the card is not in use, the key cannot be taken away because that the key is placed within the core and the lock block locks the slide portion, which result in that the hasp portion and the core being unable to rotate, so key loss is avoided or the key being discarded by somebody else. When the card inserted space is inserted with a card, the protruding portion moves by outside force, at the same time, the block moves towards the card, so the lock block can be displaced from the stop portion, which allows the slide portion to move, thus, the block can buckle with the card, which fixes the card and the key can be taken out of the core.

To further understand features and technical contents of the present invention please refer to the following detailed description and drawings related the present invention. But the drawings are only used to be references and explanations, not be limits to the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is an exploded isometric view of the present invention;

FIG. **2** is an assembled isometric view of the present invention;

FIG. **3** is an isometric partial cross-section reference drawing of operation of the present invention;

FIG. **4** is another isometric partial cross-section reference drawing of operation of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

Referring to FIG. **1** to FIG. **3**, a cabinet lock set in a door plank of the present invention is provided. The cabinet lock is unlocked by both a card and a key. The cabinet has a lock shell **10**, a lock frame **20** and a restricting device **30**.

The lock shell **10** defines a main shell **11**, a cover **12** and a back board **13**. A surface of the main shell **11** defines a notch **111** there on, and an extending portion **112** is extended outwards from the inside of the notch **111**. The cover **12** can be locked onto an end of the main shell **11** as corkscrew, and defines a card inserted space **121** with the main shell **11**, the notch **111** and the extending portion **112** are corresponding to the card inserted space **121**. The back board **13** can be locked onto another end the main shell **11** as corkscrew, a surface of the back board **13** defines a slide notch **131**, an opening **132** and a fastening hole **133** thereon.

The lock frame **20** has a slide portion **21**, a hasp portion **22**, an initiative portion **23**, a core **24**, a buckle piece **25** and an elastic thread **26** which can generate a twisting force. The slide portion **21** and the hasp portion **22** are displaceably mounted inside the main shell **11**. The back board **13**, defines a stop portion **211** which is grooved at the bottom of the slide portion, and includes a through hole **212** passing through the slide portion **21**. The hasp portion **22** defines an inclined a slide groove **221**, an integrating hole **222**, an extruding portion **223** and an inclined hasp groove **224**, the hasp groove **224** is adjacent the slide groove **221**. The initiative portion **23** is fixed through the through hole **212** of the slide portion **21**, and passes through the through hole **212** and then is positioned to locate in the slide groove **221** of the hasp portion **22**. A protruding portion **231** extends towards the back board **13** and is positioned in the slide notch **131**.

The core **24** is a standard lock case. An end of the core **24** defines a buckle portion **241** having a slot encircled therein. An integrating portion **242** extends from the buckle portion **241**, and a corkscrew lock portion **243** extends from the integrating portion **242** and is secured to the screw cap **244**. The buckle portion **241** of the core **24** passes through the opening **132** of the back board **13**, and then the integrating portion **242** and the corkscrew lock portion **243** extend into the main shell **11**. The buckle piece **25** is U shape, and is buckled to the buckle portion **241** to clip and stabilize the core **24** in the lock shell **10**. The integrating portion **242** is integrated with the integrating hole **222** of the hasp portion **22** to allow the hasp portion **22** to be in cooperation with the core **24**, and to stabilize the hasp portion **22** by the corkscrew locking with a screw cap **244** of the corkscrew lock portion **243**. The other end of the core **24** extends external to the back board **13**, and a lock hole **245** formed therein to provide a hole for a key (not be shown) to be inserted.

The elastic thread **26** is made of an elastic material and has an appropriate elasticity. One end of the elastic thread **26** is inserted into the fastening hole **133** of the back board **13**, and the other end contacts the hasp portion **22**. The elastic thread **26** enlaces a connector **27** and the connector **27** is fixed in the hasp portion **22** to provide the hasp portion **22** with a biasing force.

The restricting device **30** has a lock block **31**, an elastic module or spring **32** and a pivot pin **33**. A block **311** and a protruding portion **312** are defined on an end of the lock block **31** and are close to each other. The protruding portion **312** is longer than the block **311**. A concave **313** which is formed in the other end of the lock block **31** is on the same side as the block **311**, with one side of the protruding portion **312** being downwardly declined. The lock block **31** is set in the notch **111** and the extending portion **112** of the main shell **11**. The pivot **33** passes through the extending portion **112** and the lock block **31** synchronously to allow the lock block **31** to be pivoted in the main shell **11**. The block **311** and the protruding portion **312** extends into the card insertion space **121** passing through the notch **111**.

The block **311** is adjacent to the slide portion **21**, and part of the lock block **31** is positioned in the stop portion **211** of the slide portion **21**. The elastic module **32** is a spring and may be set in the extending portion **112**. An end of the elastic module **32** supports another end of the protruding portion **312**, and another end supports the inside wall of the back board **13** of the lock shell **10**, which provides the lock block **31** to be elastically displaced.

Referring to FIGS. **1**, **3** and **4**, the actions of the present invention are shown during operation. A key is inserted into the keyhole **245** of the core **24** in advance and cannot be removed. A card **40** may be inserted into the card insertion space **121** of the lock shell **10**. A hole **41** is defined on the card **40**, when inserted into the card insertion space **121**, the card **40** touches the incline of the protruding portion **312**. The protruding portion **312** moves towards the slide portion **21** and displaces the block **311** towards the card **40** synchronously by the force on the card **40**. When the card **40** is displaced to a predetermined position, the lock block **31** will exit the stop portion **211** to allow the slide portion **21** to move, and the block **311** is buttoned into the hole **41** of the card **40**. Thus the card **40** cannot be removed. The function of the concave **313** is to shorten the distance between the lock block **31** and the stop portion **211**.

When a user rotates the core **24** by a key to make the hasp portion **22** rotate, the movement of the slide groove **221** makes the initiative portion **23** drive the slide of the slide portion **21** towards the hasp portion **22**, and also makes the protruding portion **231** slide in the slide notch **131**. The extruding portion **223** extends out of the lock shell **10** when the core **24** is rotated to a final position which makes the hasp groove **224** button onto an object (not shown), and then the system is locked. Thereby, the user can take out the key.

When the user put the key into the core **24** again and rotates the core **24** to the original position, the hasp portion **22** and the slide portion **21** are displaced to the original position. The lock block **31** is displaced back into the stop portion **211** due to the elasticity of the elastic module **32** and at the same time, the block **311** is moved external the hole **41** of the card **40**, and then, the card **40** may be taken out of the lock shell **10**.

In summary, when the card **40** is not in use, the key is placed within the core **24**, the lock block **31** locks the slide portion **21**, which results in that the hasp portion **22** and the core **24** unable to rotate. Thus in this case the key cannot be taken away and avoids loss or being discarded by somebody else. When the card **40** is in use, the key may be taken away by the said action, but the card **40** cannot be taken away. To avoid the key and the card **40** being lost together, it is necessary to insert the key into the core **24** and then to remove the card **40**. Thereby, by controlling on the card **40**, the user of the cabinet can avoid not only key loss but also spiteful discarding of a key by somebody else.

What is disclosed above only is a preferred embodiment of the present invention, and therefore it is intended that the present invention not be limited to the particular embodiment disclosed. It will be understood by those skilled in the art that various equivalent changes may be made depending on the specification and the drawings of present invention without departing from the scope of the present invention.

What is claimed is:

1. A cabinet lock, comprising:

a lock shell defining a card inserted space;

a lock frame comprising a slide portion, a hasp portion, an initiative portion and a core, the slide portion and the hasp portion are set movably inside a main shell, the slide portion includes a stop portion formed therein, and the hasp portion defines a slide groove, the initiative portion is fixed to the hasp portion within the slide groove, an end of the core extends into the main shell to contact with the hasp portion, another end of the core extends outwards of the lock shell; and

a restricting device comprising a lock block and an elastic module, the lock block is pivoted in the main shell, a block and a protruding portion are defined on an end of the lock block extendedly and are close to each other, and the protruding portion is longer than the block somewhat, the block is near to the slide portion, and part of the lock block locates in the stop portion to lock the slide portion, and the lock block moves away from the stop portion by an external force to allow displacing an extruding portion, two ends of the elastic module support another end of the protruding portion and an inside wall of a back board of the lock shell respectively, which provides the lock block with a function of elastic replacement.

2. The cabinet lock as claimed in claim **1**, wherein the lock shell includes, a cover combined with an end of the main shell, and the back board is combined with the other end of the main shell, said card inserted space being defined between the cover and the main shell.

3. The cabinet lock as claimed in claim **2**, wherein the main shell defines a notch thereon, and an extending portion is extended outwardly from the inside of the notch, the lock

block is pivoted in the extending portion and the notch to make the block extend into the card inserted space.

4. The cabinet lock as claimed in claim **2**, wherein the back board defines a slide notch, a protruding portion is protruded towards the back board thereof to be located in the slide notch.

5. The cabinet lock as claimed in claim **1**, wherein the lock frame has a buckle piece, the buckle piece is buckled to the core to clip and stabilize the core in the lock shell, and

an elastic thread, two ends of the elastic thread are combined with the lock shell and the hasp portion respectively to make the hasp portion have a function of elastic replacement.

6. The cabinet lock as claimed in claim **5**, wherein the core has a buckle portion where an integrating portion extends from the buckle portion, and a corkscrew lock portion is extended from the integrating portion, the buckle piece is buckled to the buckle portion, the hasp portion is integrated with the integrating portion, the corkscrew lock portion has a screw cap to stabilize the hasp portion.

7. The cabinet lock as claimed in claim **5**, wherein the elastic thread enlaces a connector, the connector is set in the hasp portion.

8. The cabinet lock as claimed in claim **1**, wherein the extruding portion extrudes from the hasp portion thereof, the extruding portion defines a hasp groove thereon, the hasp groove is near to the slide groove.

9. The cabinet lock as claimed in claim **1**, wherein a concave is defined on the other end of the lock block, the concave is corresponding to the stop portion.

* * * * *